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PROBLEMS IN FERROMAGNETISM AND MAGNETODYNAMICS
(Symposium of Nine Soviet Scientists on Magnetism)

Edited by V. K. Arkad'yev
Corr Mem, Acad Sci USSR

FOREWORD

The works gathered together in this symposium deal with problems of theoretical magnetism and the theory of electromagnetic fields in metals. The greater part of these works were carried out in the Magnetic Laboratory, which was established in the Section on Scientific Problems of Electrical Communication, under the Department of Technical Sciences, Academy of Sciences USSR.

The 14 articles in this book are concerned with the latest problems on the magnetization of iron, nickel, and their alloys, mainly in alternating fields of various frequencies, ranging from audiofrequencies to radiofrequencies, and even higher frequencies up to waves one to 3 centimeters. These problems have been worked on for a long time at Moscow, where they were introduced for the first time. There, the basic problems of this kind, under the names of magnetic spectroscopy and magnetodynamics, are being solved by Soviet physicists. The results obtained form the basis of corresponding works of foreign scientists.

Magnetodynamics, arising from investigations into the processes of magnetization of ferromagnetic substances, at present includes the study of magnetic polarization and also of weakly magnetic bodies. As indicated by Dutch works of the past 30 years, paramagnetic and ferromagnetic substances also satisfy very fully our equations that describe the spectra of magnetic bonds. Therefore, it must be admitted that magnetodynamics encompasses a very wide field and goes beyond the bounds of ferromagnetism. This justifies the title of this book in which the problems of magnetodynamics stand alongside those of ferromagnetism.

Part of the works published in this symposium is concerned with magnetization in a constant field and with the application of laws of magnetization to problems of safety in railroad transportation. The articles, beside being of scientific interest, also have great practical value, since they arose from problems of wire and

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cable communications and radio technology, and also from problems involved in the defectoscopy of rails (detection of defects in railroads, etc.).

This collection is the seventh number in a series of publications issued under a combined general editorship.

V. K. Arkad'yev

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